

efka vario dc

CONTROL

PF82AV3304

PARAMETER LIST

**CONNECTION DIAGRAM
TIMING DIAGRAMS**

No. 402228 english

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1. Starting Service

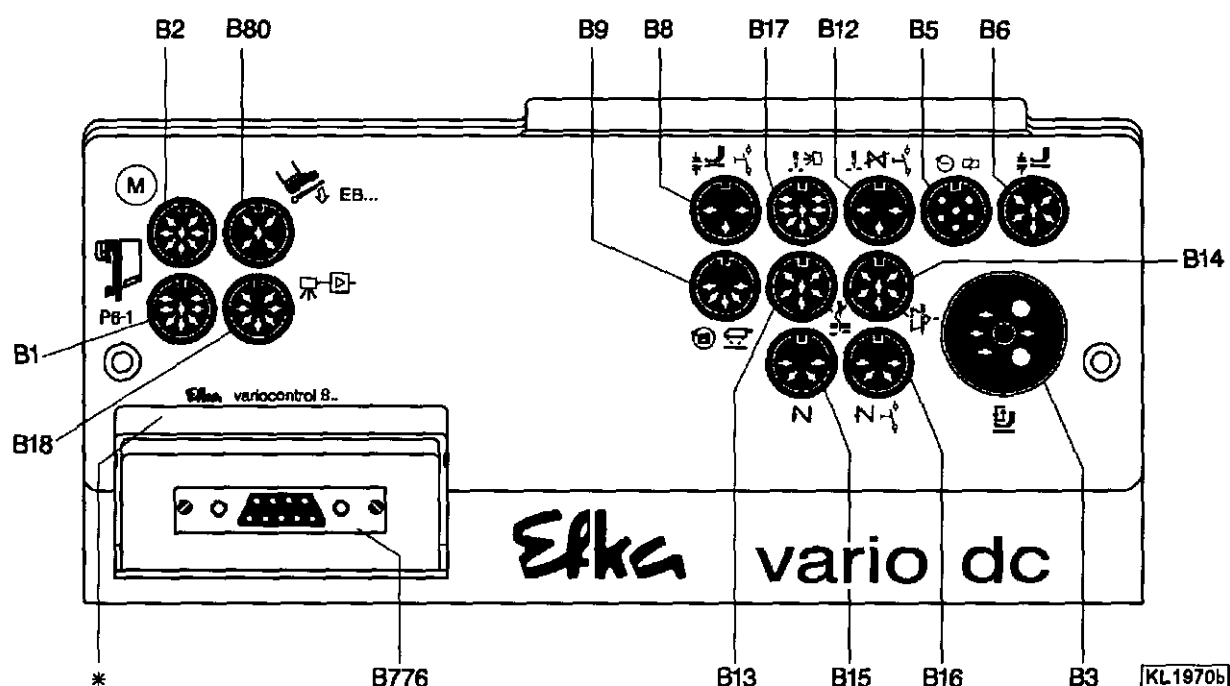
Before putting the control into operation, the following must be ensured, checked and/or adjusted:

- The correct installation of the drive, the position transmitter and accompanying devices, if necessary
- The correct adjustment of the direction of rotation of the motor with parameter 161
- The setting of the reference position with parameter 170
- The setting of the positions with parameter 171
- The correct setting of the positioning speed with parameter 110
- The correct maximum speed compatible with the sewing machine with parameter 111
- The setting of the remaining relevant parameters
- Start sewing in order to save the set values

See instruction manual for details!

2. Socket Connectors

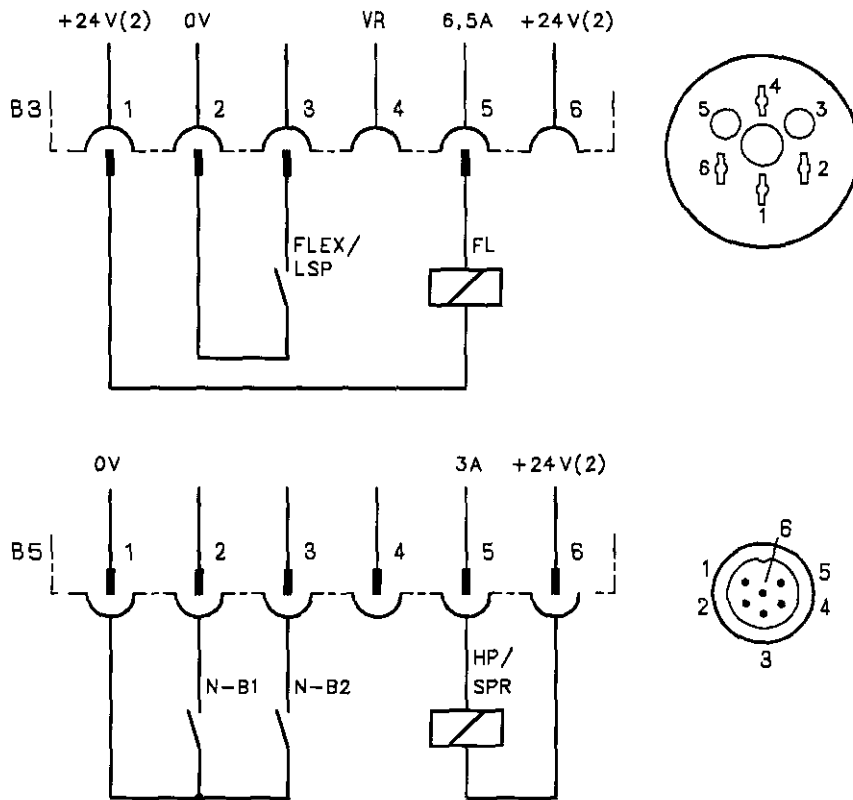
2.1 Position in the Control



B1	- Position transmitter	B13	- Machine
B2	- Commutation transmitter for d.c. motor	B14	- Machine
B3	- Machine	B15	- Machine
B5	- Machine	B16	- Machine
B6	- Machine	B17	- Thread monitor
B8	- Pushbuttons	B18	- Light barrier module
B9	- Machine	B80	- Actuator
B12	- Pushbuttons	B776	- Control panel Variocontrol (adapter 25/9-pole screw-connected)

*) Type designation

2.2 Connection Diagram



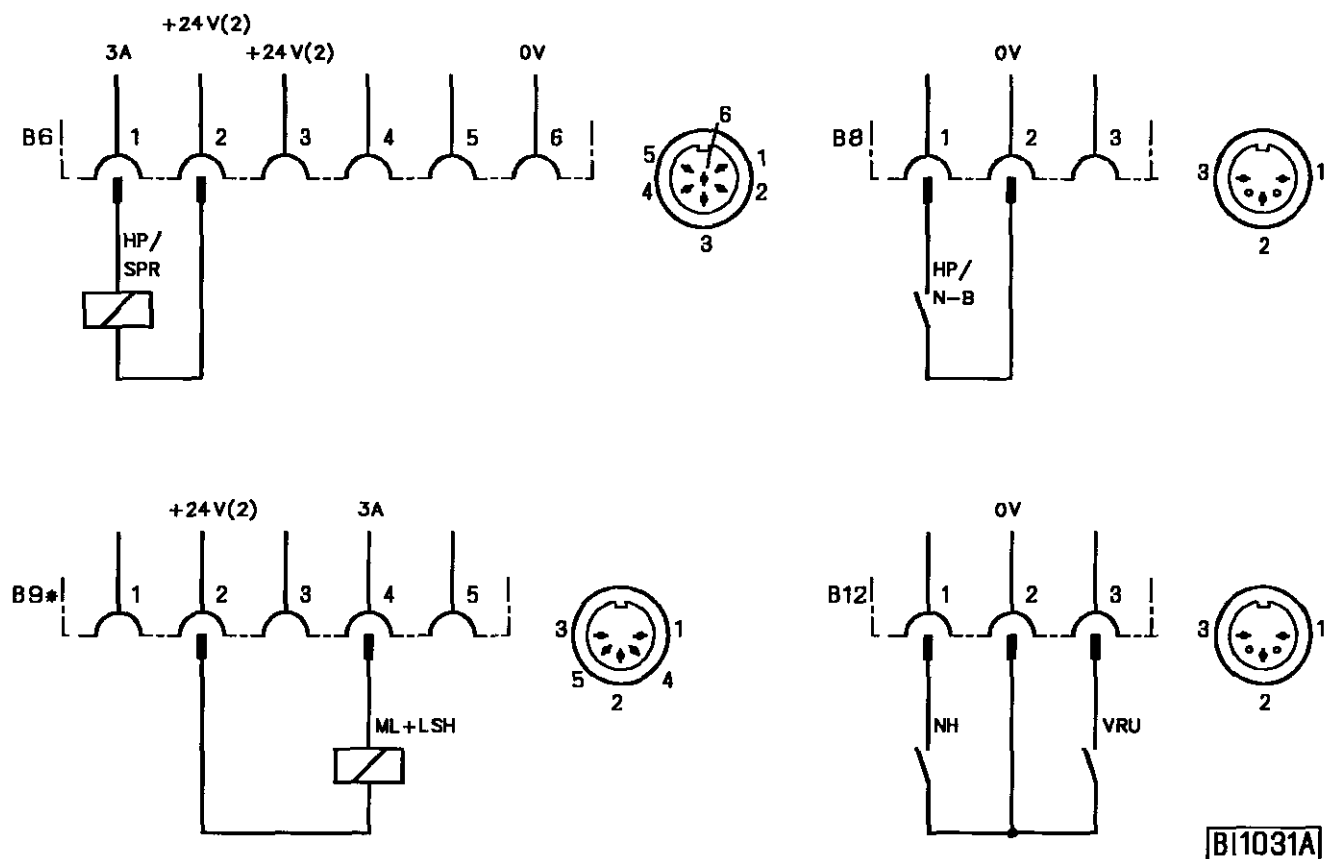
B1030



Attention!

When connecting the outputs, ensure that a total power of 96VA constant load will not be exceeded !

- | | |
|--------|---|
| FL | - Presser foot lift |
| HP/SPR | - High lift for walking foot and/or blocking solenoid |
| VR | - Backtacking |
| FLEX | - Presser foot activated externally |
| LSP | - Blocking of machine run |
| N-B1 | - Speed limitation 1 |
| N-B2 | - Speed limitation 2 |



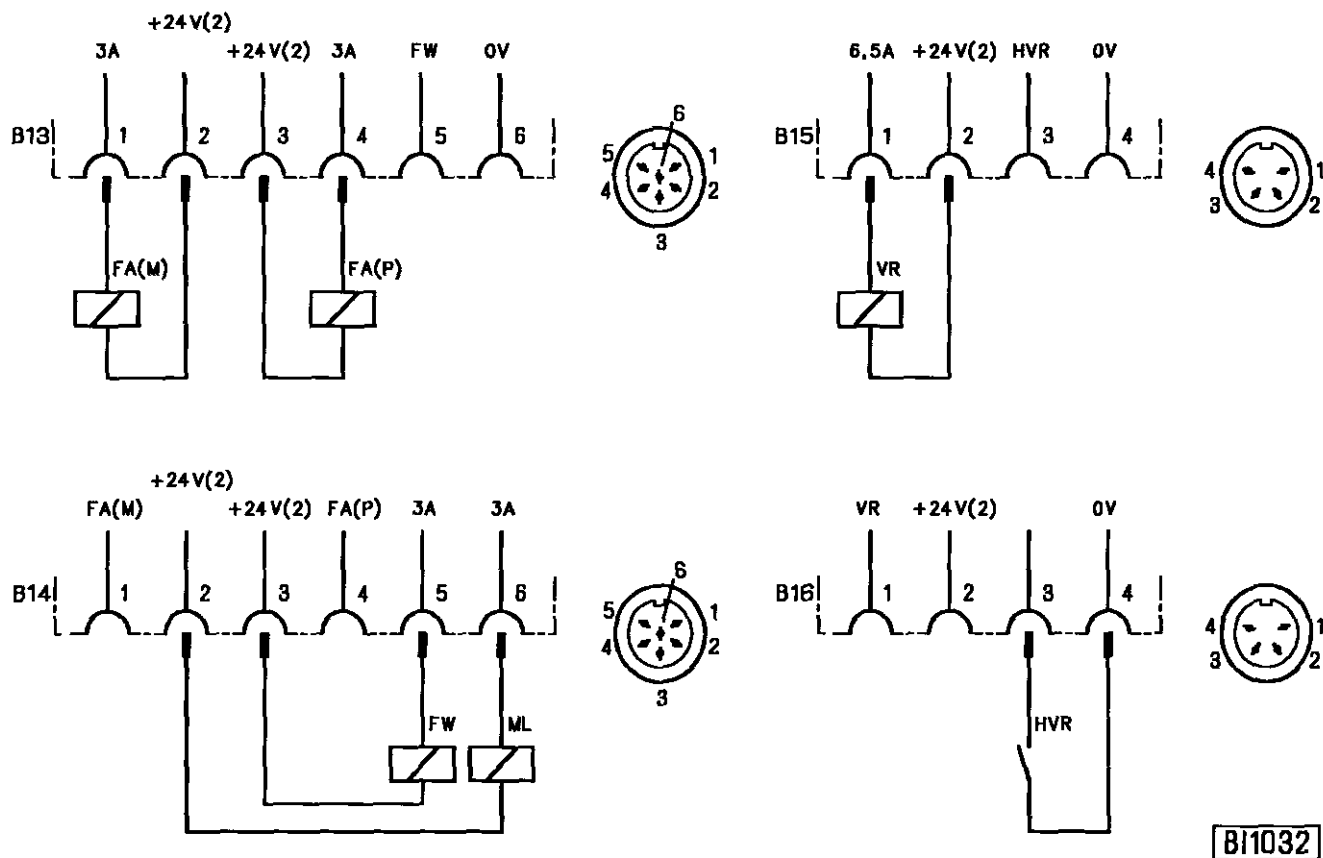
Attention!

When connecting the outputs, ensure that a total power of 96VA constant load will not be exceeded !

HP/SPR	- High lift for walking foot and/or blocking solenoid
ML+LSH	- Machine running + light barrier uncovered
N-B	- Speed limitation
NH	- Needle up
VRU	- Backtack suppression / recall

*) Prepared for future functions

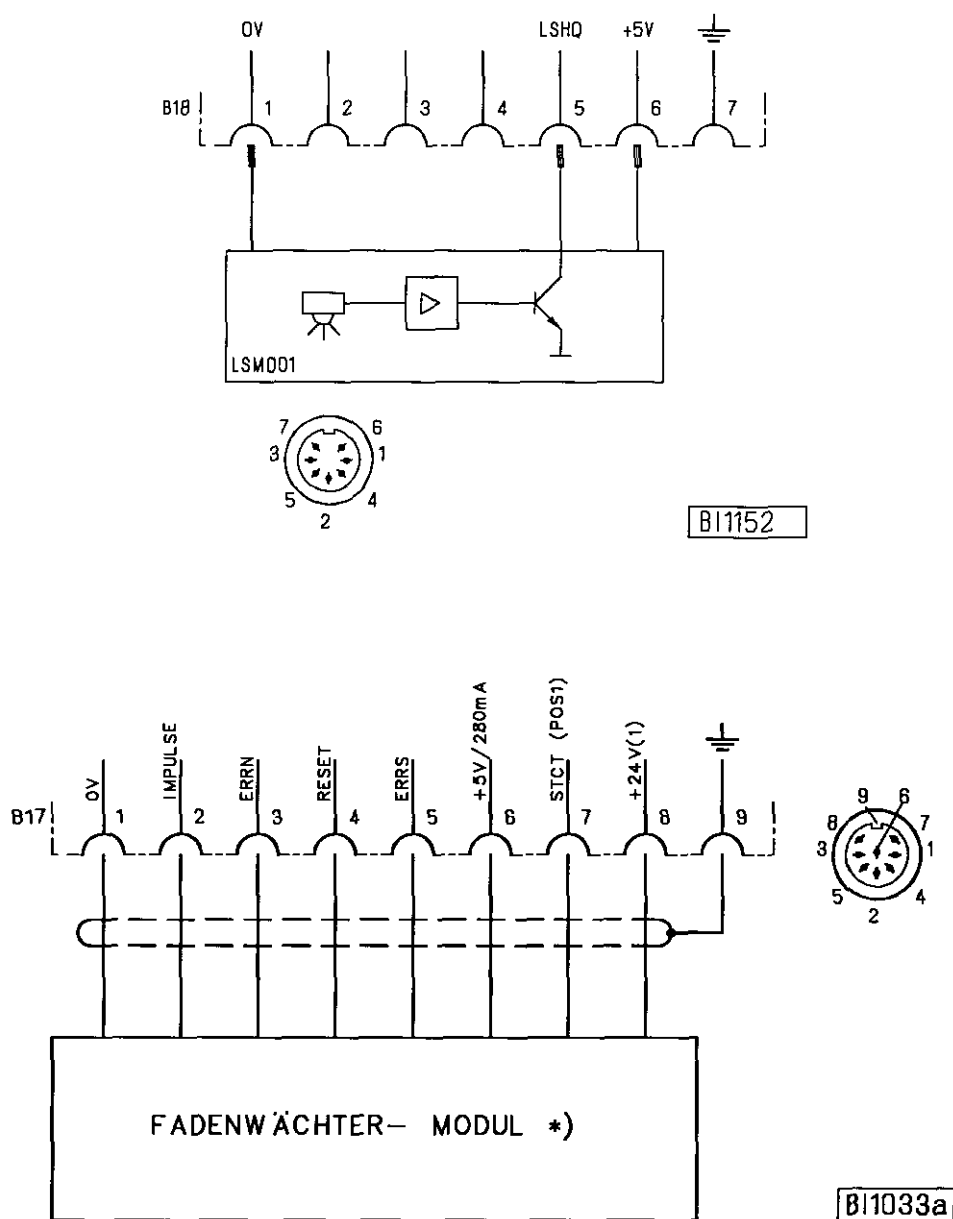
2) Nominal voltage 24V, no-load voltage max. 36V



Attention!

When connecting the outputs, ensure that a total power of 96VA constant load will not be exceeded !

FA/M	- Thread trimmer (magnetic)
FA/P	- Thread trimmer (pneumatic)
FL	- Presser foot lift
ML	- Machine running
VR	- Backtacking
HVR	- Intermediate backtack

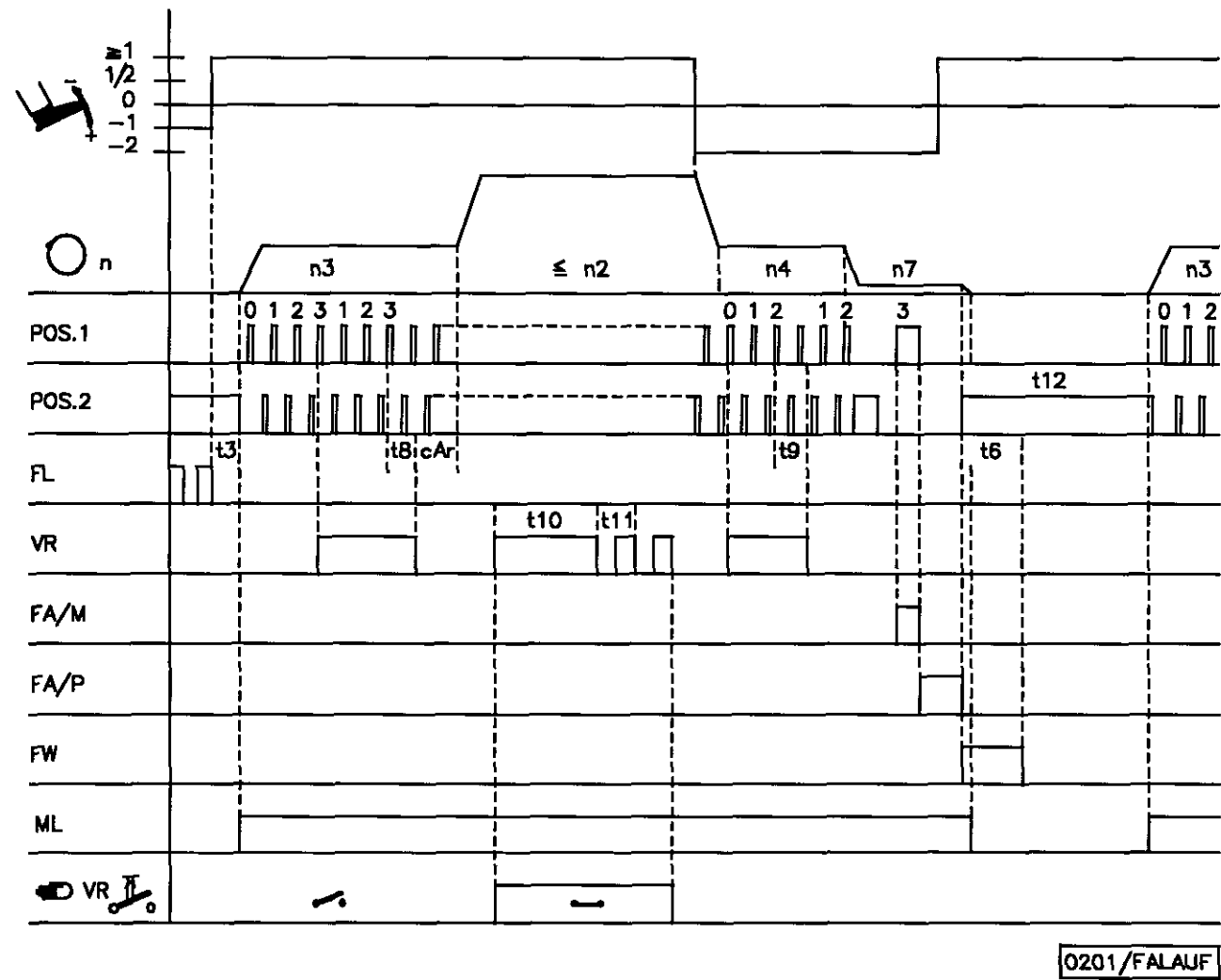


*) Thread monitor module

- | | |
|---------|--|
| IMPULSE | - 512 impulses/rotation |
| ERRN | - Needle thread monitor |
| ERRS | - Bobbin thread monitor |
| STCT | - Stitch counting (POS1) |
| LSHQ | - Light barrier command (identified when switched to 0V) |
| LSM001 | - Reflection light barrier module |

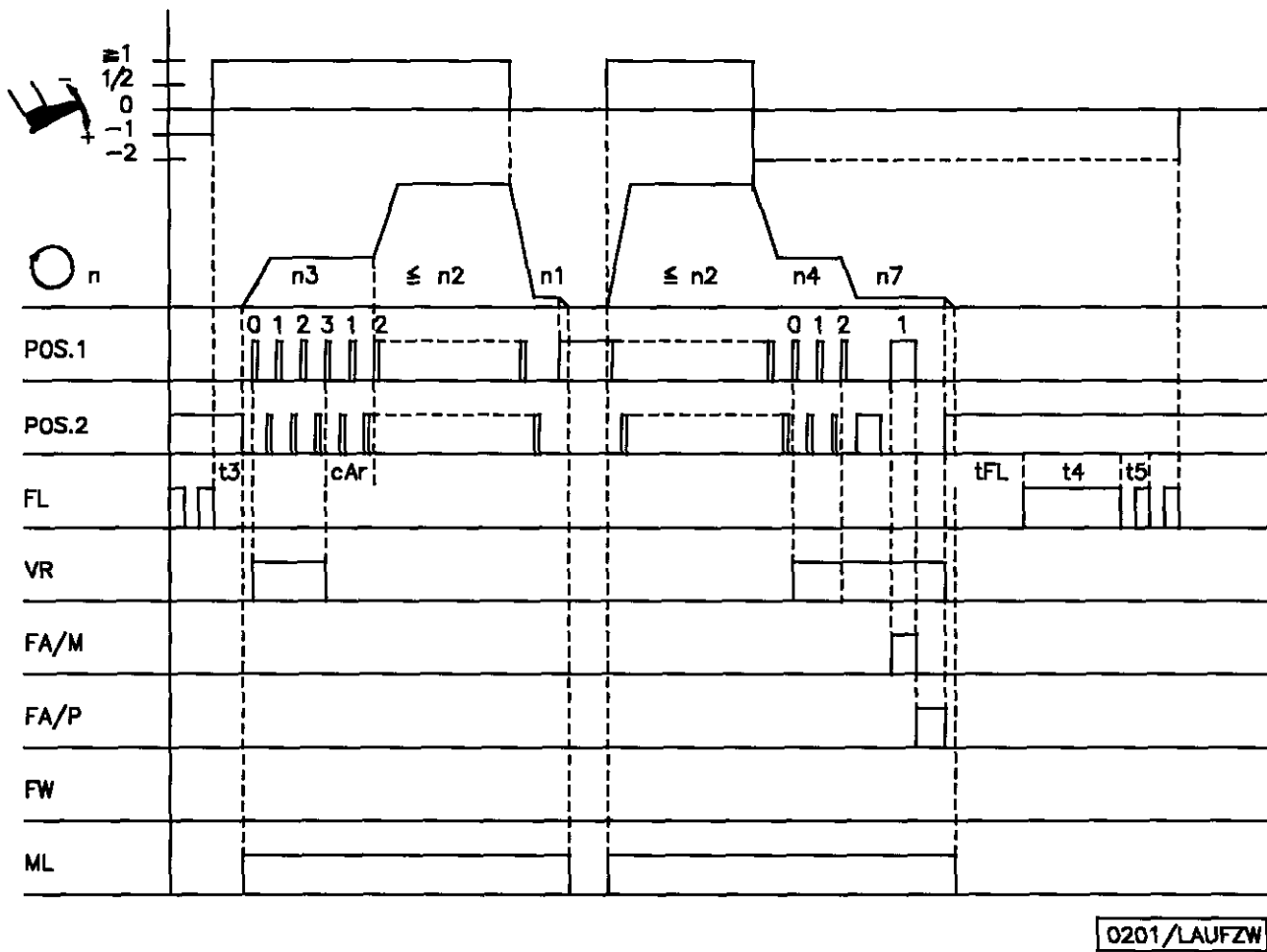
3. Timing Diagrams

Trimming from full machine run



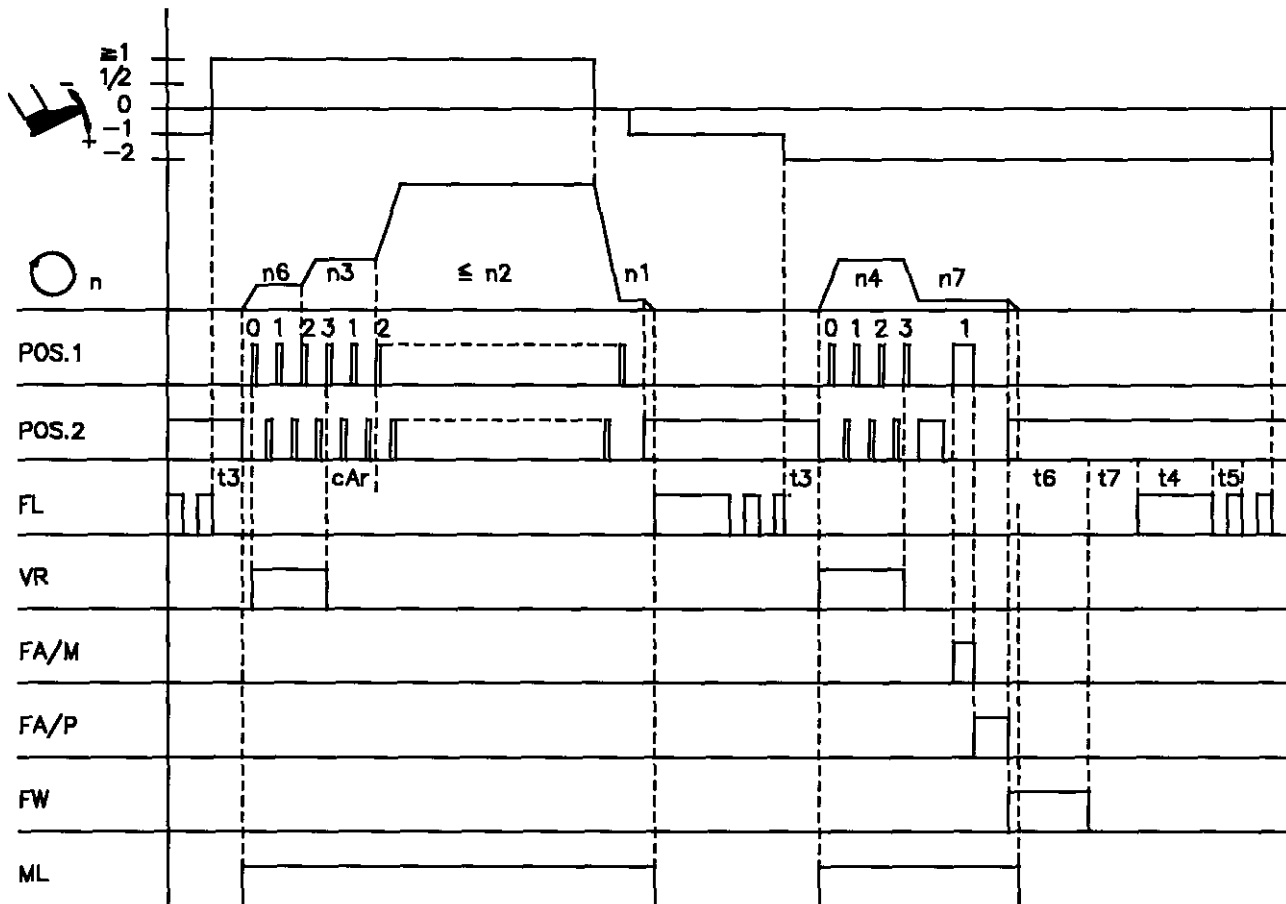
Abbre- viation	Function	Param.	Pushbutton V810	Pushbutton V820
	Double start backtack with stitch correction Double end backtack with stitch correction	On On	Pushb. 1 Pushb. 2	Pushb. 1 Pushb. 4
n2 n3 n4 n7	Maximum speed Start backtacking speed End backtacking speed Trimming speed	111 112 113 116		
t3 t6 t8 t9 t10 t11 t12 cAr	Start delay from lifted foot Operating time of thread wiper Start backtack stitch correction End backtack stitch correction Full power of backtacking Pulsing of backtacking Start delay after thread trimming Stitch counting until speed release after start backtack	202 205 150 151 212 213 fixed 200		

Run with intermediate stop



Abbreviation	Function	Param.	Pushbutton V810	Pushbutton V820
	Single start backtack Single end backtack Trimming stitch backward	On On 136 = ON	Pushb. 1 Pushb. 2	Pushb. 1 Pushb. 4
n1	Positioning speed	110		
n2	Maximum speed	111		
n3	Start backtacking speed	112		
n4	End backtacking speed	113		
n7	Trimming speed	116		
t3	Start delay from lifted foot	202		
t4	Full power of presser foot lift	203		
t5	Holding power of presser foot lift	204		
cAr	Stitch counting until speed release after start backtack	200		
tFL	Delay of presser foot lift when thread wiper is off	211		

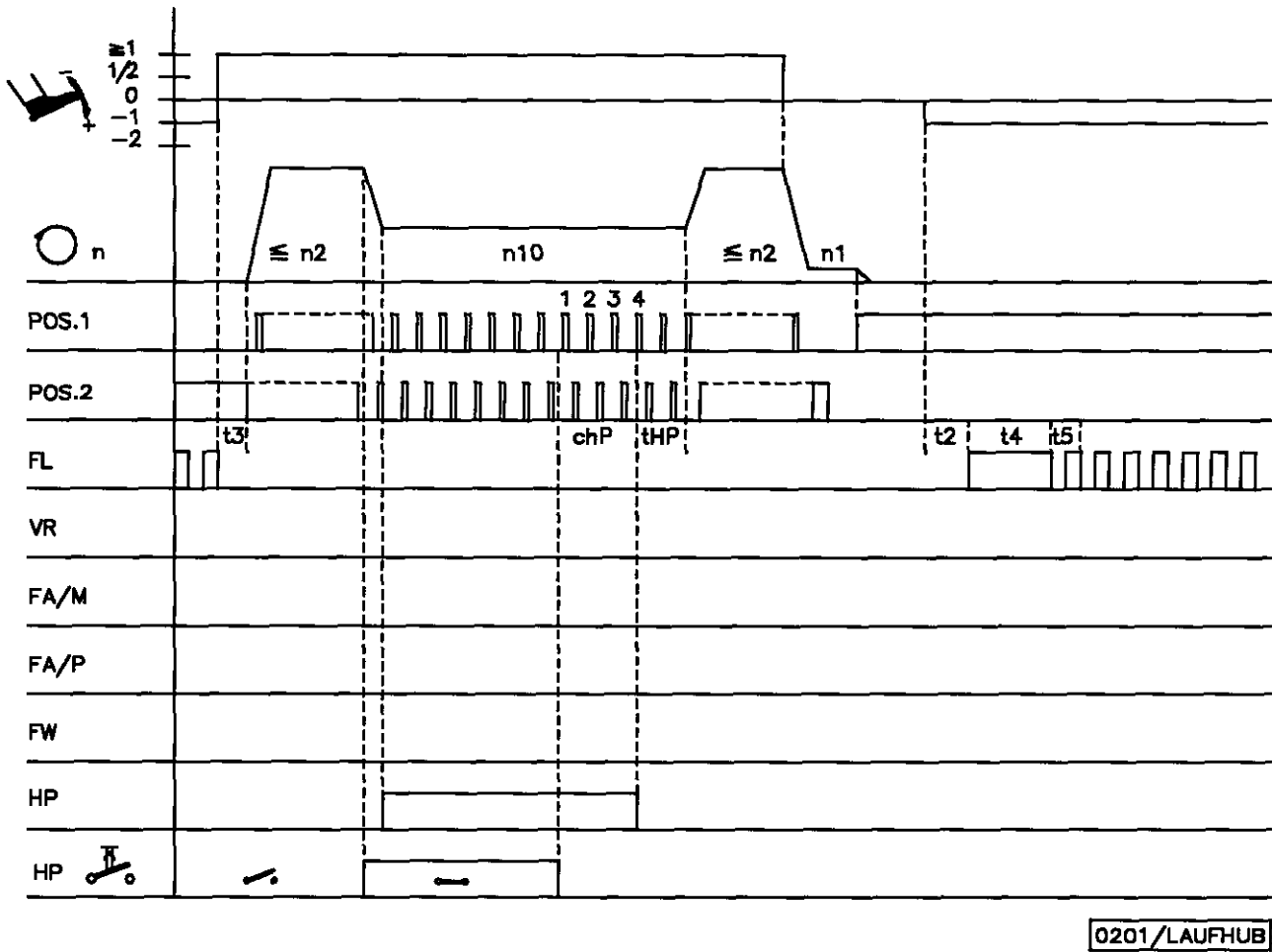
Trimming from intermediate stop



0201/FAZW

Abbreviation	Function	Param.	Pushbutton V810	Pushbutton V820
	Softstart Basic position 2 Single start backtack Single end backtack	On On On On	134 Pushb. 4 Pushb. 1 Pushb. 2	 Pushb. 7 Pushb. 1 Pushb. 4
n1	Positioning speed	110		
n2	Maximum speed	111		
n3	Start backtacking speed	112		
n4	End backtacking speed	113		
n6	Softstart speed	115		
n7	Trimming speed	116		
t3	Start delay from lifted foot	202		
t4	Full power of presser foot lift	203		
t5	Holding power of presser foot lift	204		
t6	Operating time of thread wiper	205		
t7	Delay time of presser foot lift after thread wiping	206		
cAr	Stitch counting until speed release after start backtack	200		

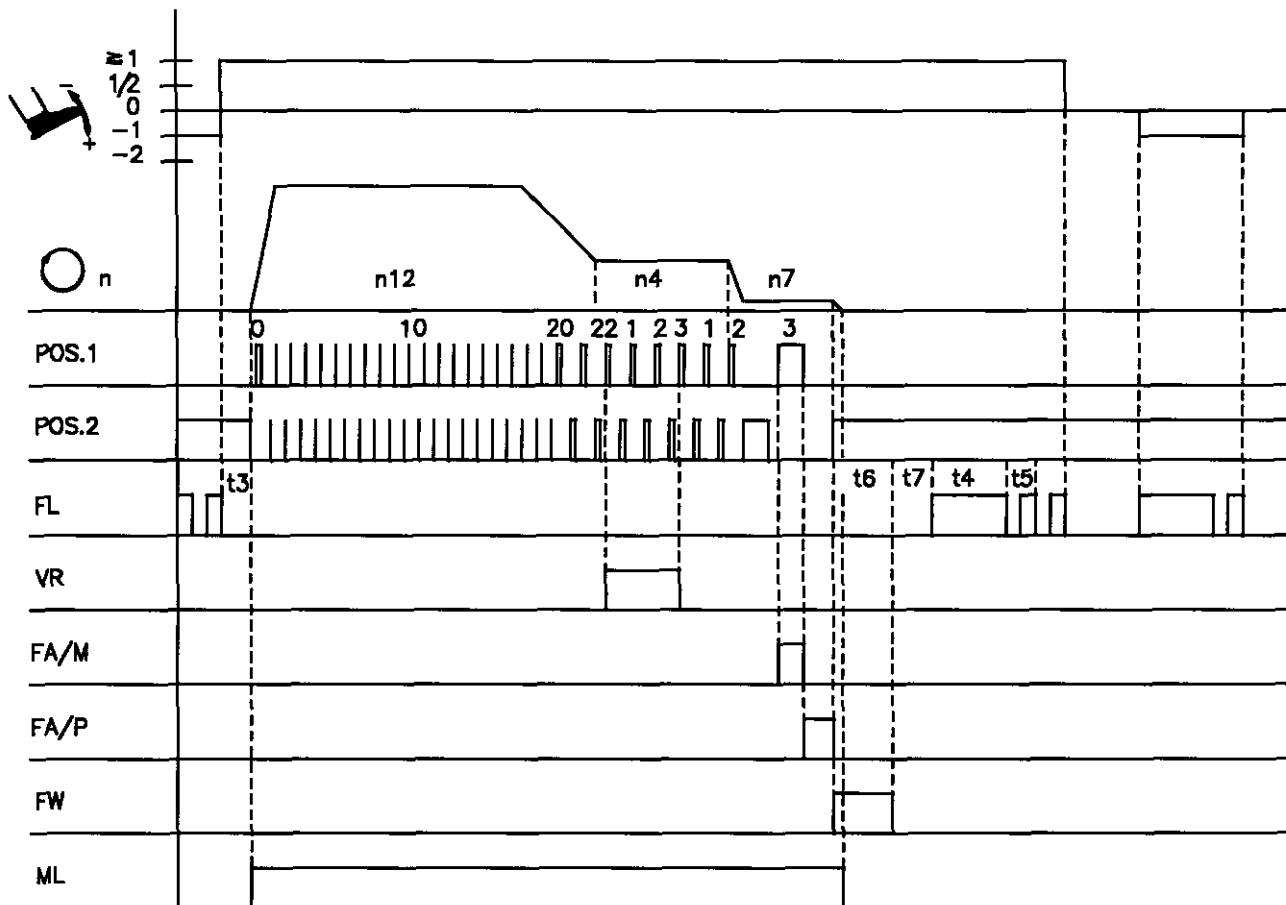
Run with high lift for walking foot



0201/LAUFHUB

Abbreviation	Function	Param.	Pushbutton V810	Pushbutton V820
	High lift for walking foot operation mode not stored Start backtack End backtack	On Off Off	137	Pushb. 1 Pushb. 2 Pushb. 4
n1 n2 n10	Positioning speed Maximum speed High lift walking speed	110 111 117		
t2 t3 t4 t5 thP chP	Delay of presser foot lift with pedal in pos. -1 or -2 Start delay from lifted foot Full power of presser foot lift Holding power of presser foot lift Run-out time of the high lift walking speed Number of high lift walking stitches	201 202 203 204 152 185		

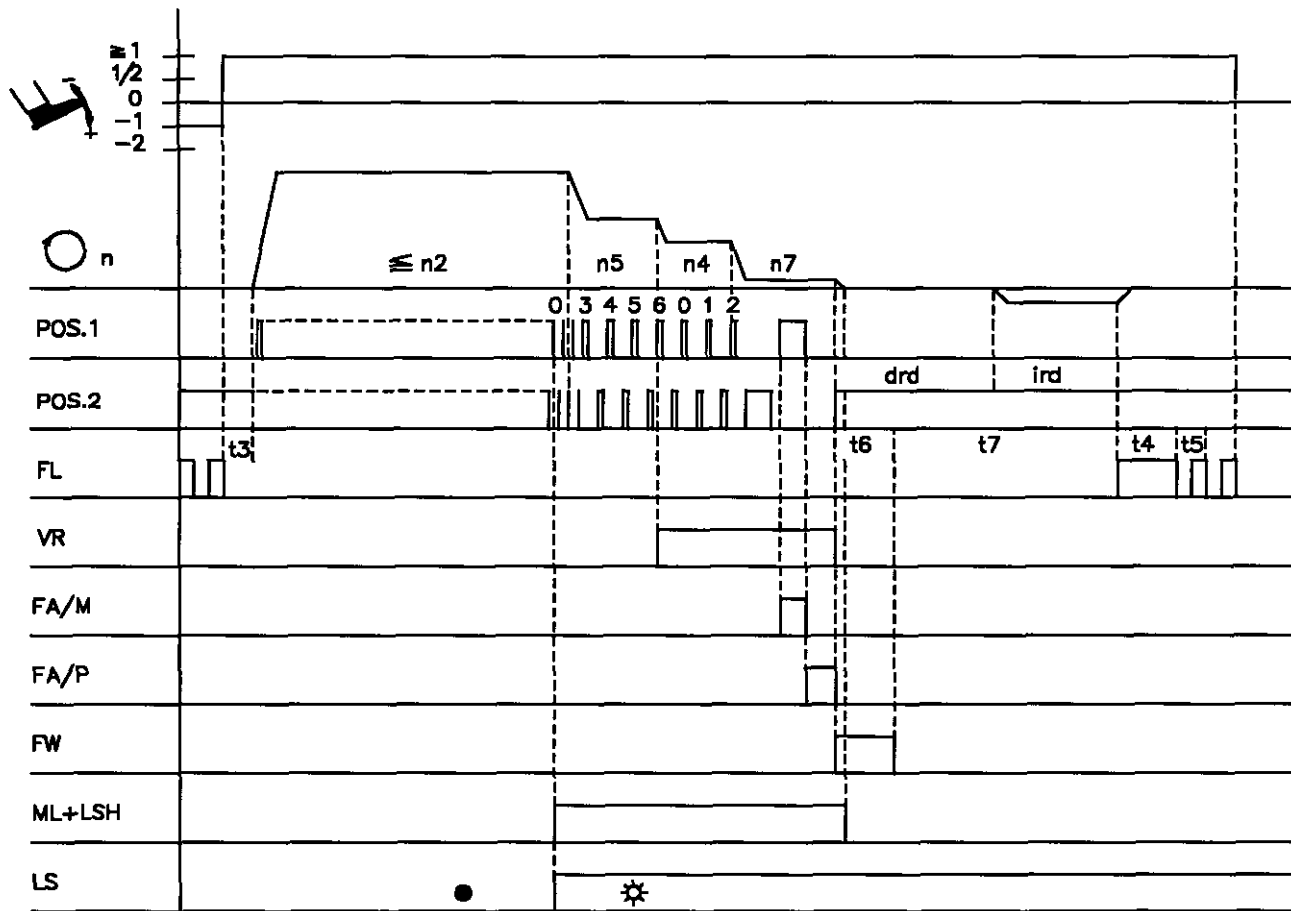
Seam end by stitch counting



0201/ENDEZAE

Abbreviation	Function	Param.	Pushbutton V810	Pushbutton V820
	Start backtack Stitch counting Double end backtack Speed mode stitch counting (limited speed)	Off On On 141 = 2	Pushb. 1 --- Pushb. 2	Pushb. 1 Pushb. 2 Pushb. 4
n4 n7 n12	End backtacking speed Trimming speed Stitch counting speed	113 116 118		
t3 t4 t5 t6 t7	Start delay from lifted foot Full power of presser foot lift Holding power of presser foot lift Operating time of thread wiper Activation delay of presser foot lift after thread wiping	202 203 204 205 206		

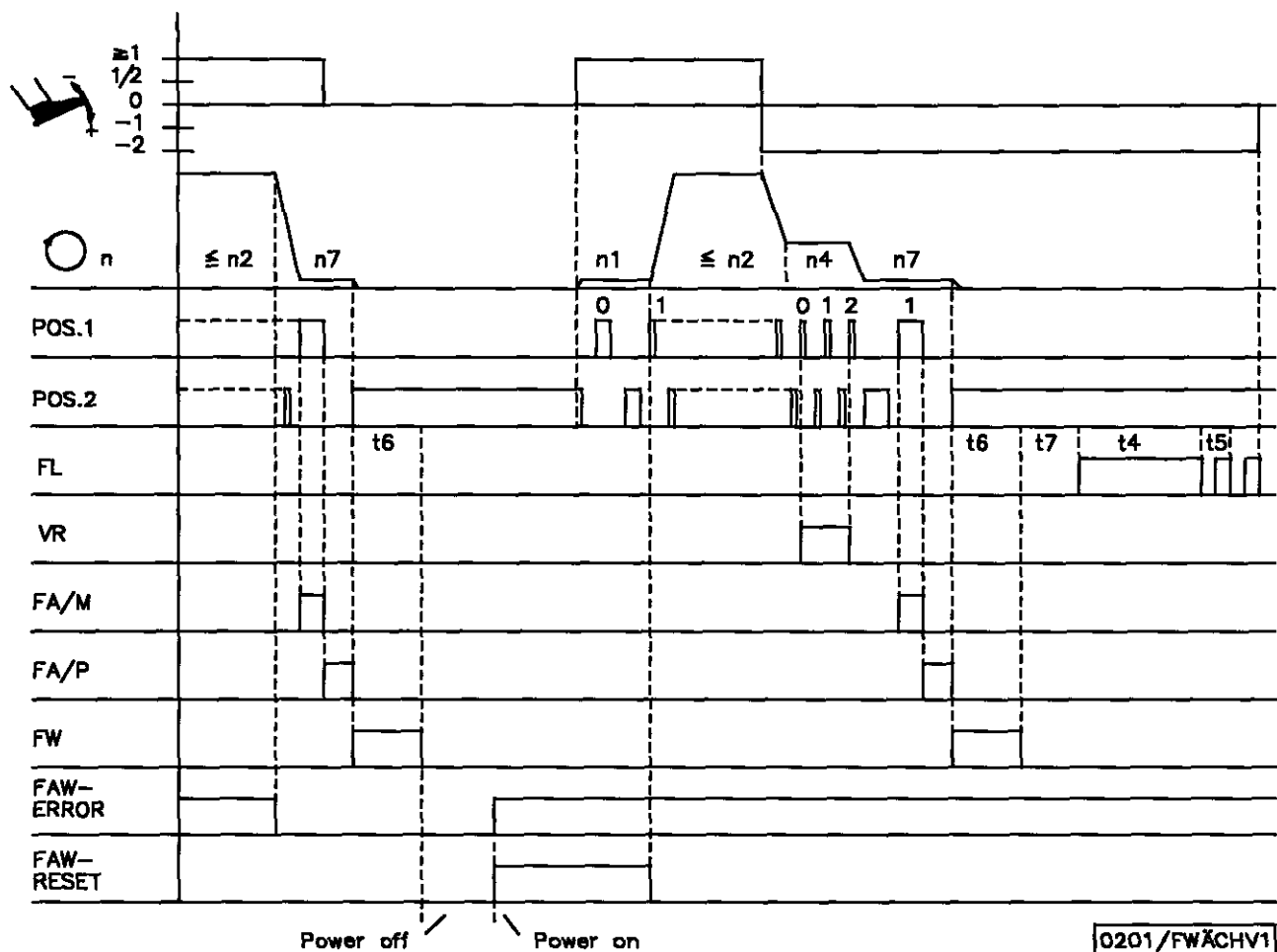
End sensing by light barrier



0201/ENDELS

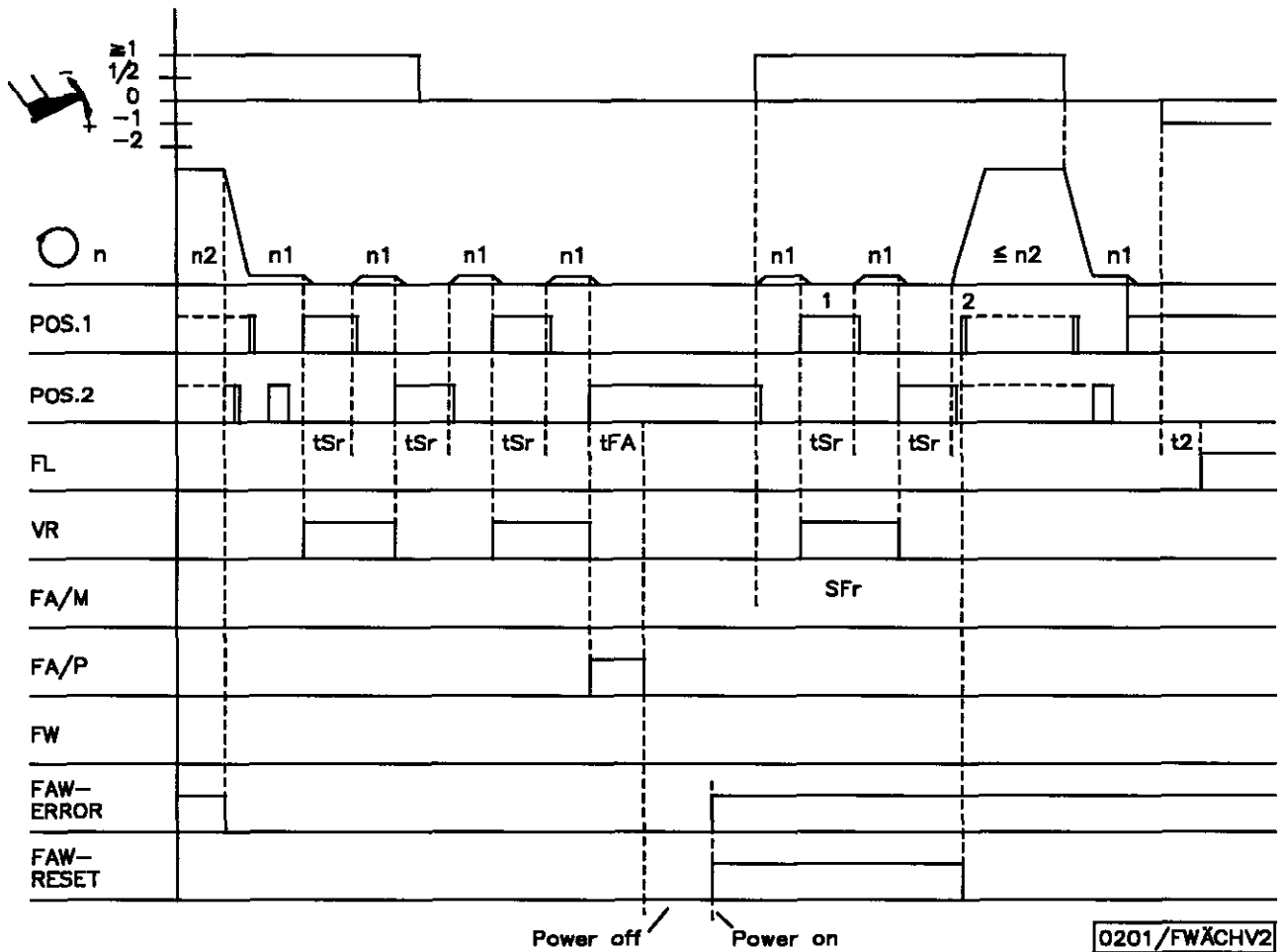
Abbreviation	Function	Param.	Pushbutton V810	Pushbutton V820
	Start backtack Single end backtack Light barrier Light barrier covered/uncovered Trimming stitch backward Reversion	Off On On On On On	009 131 = ON 136 = ON 008 = 6	Pushb. 1 Pushb. 2 --- Pushb. 4 Pushb. 3
n2	Maximum speed	111		
n4	End backtacking speed	113		
n5	Speed after light barrier sensing	114		
n7	Trimming speed	116		
ird	Number of reversion increments	180		
drd	Activation delay of reversion	181		
t3	Start delay from lifted foot	202		
t4	Full power of presser foot lift	203		
t5	Holding power of presser foot lift	204		
t6	Operating time of thread wiper	205		
t7	Delay time of presser foot lift after thread wiping	206		

Bobbin thread monitor for magnetic thread trimmer (182 = 1)



Abbreviation	Function	Param.	Pushbutton V810	Pushbutton V820
	Single start backtack Single end backtack Bobbin thread monitor for magn. thread trimmer	On On 182 = 1	Pushb. 1 Pushb. 2	Pushb. 1 Pushb. 4
n2	Maximum speed	111		
n3	Start backtacking speed	112		
n4	End backtacking speed	113		
n7	Trimming speed	116		
t3	Start delay from lifted foot	202		
t4	Full power of presser foot lift	203		
t5	Holding power of presser foot lift	204		
t6	Operating time of thread wiper	205		
t7	Delay time of presser foot lift after thread wiping	206		
cAr	Stitch counting until speed release after start backtack	200		

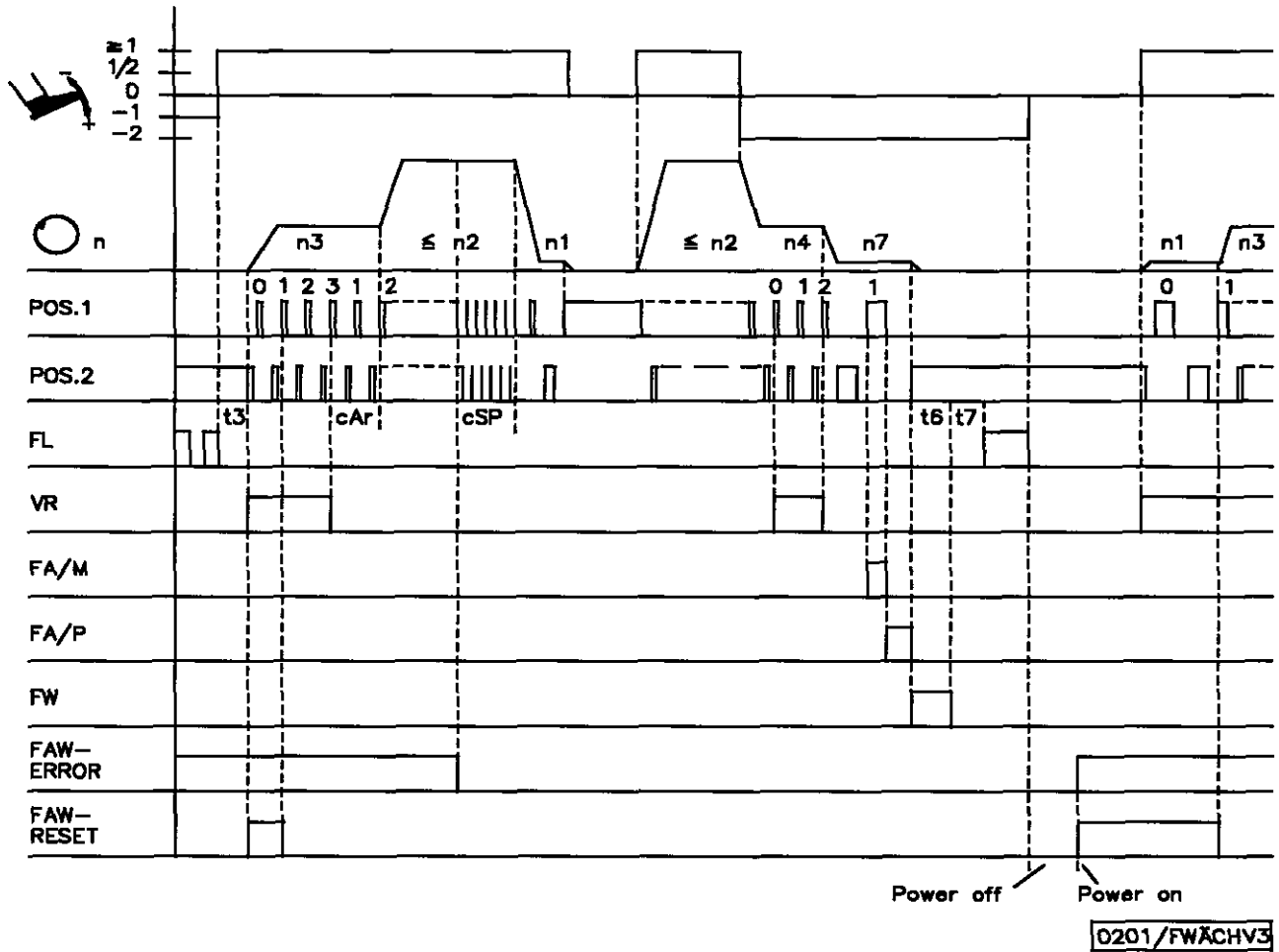
Bobbin thread monitor for pneumatic thread trimmer 926/01 (182 = 2)



0201/FWÄCHV2

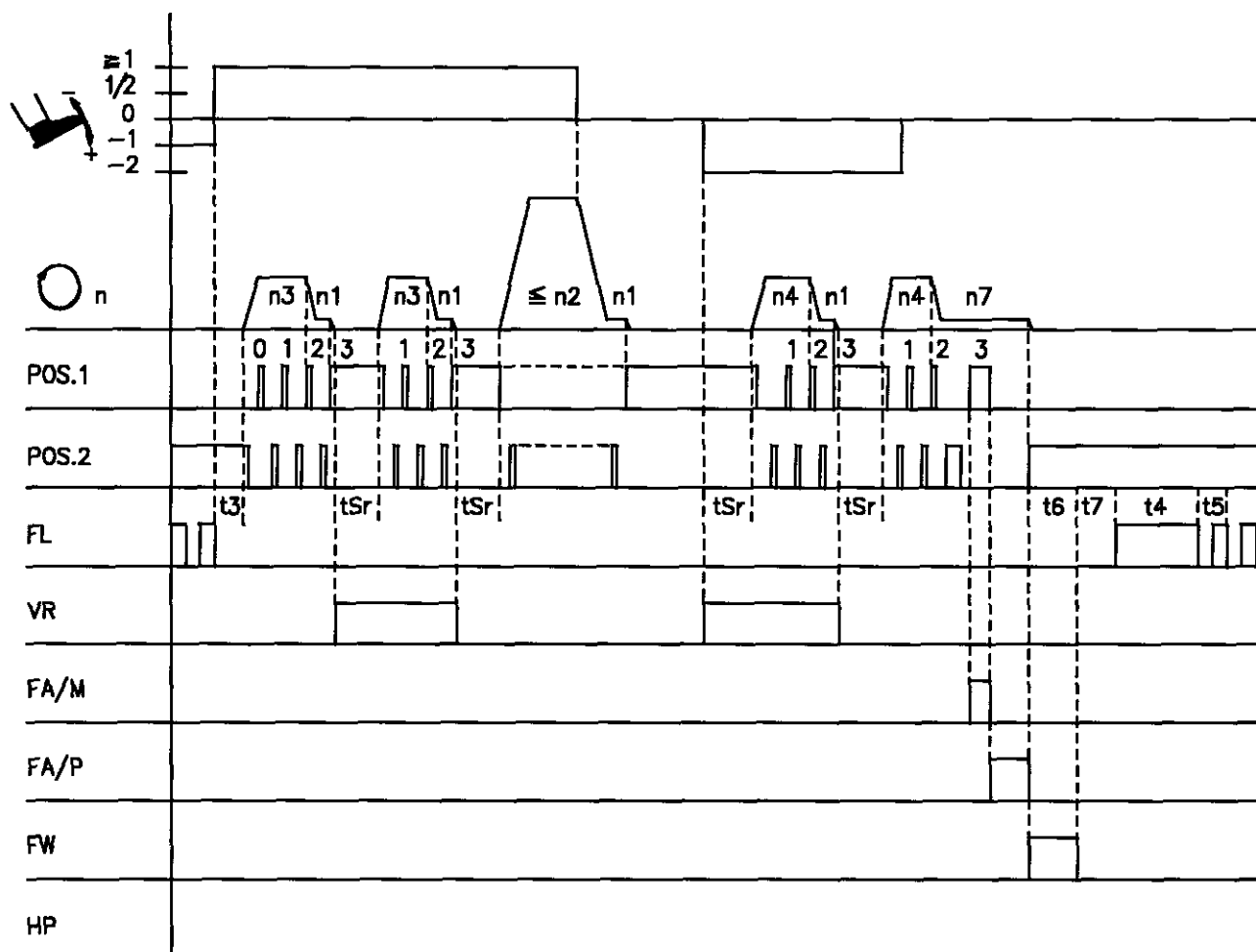
Abbreviation	Function	Param.	Pushbutton V810	Pushbutton V820
	Single start backtack Bobbin thread monitor for pneum. thread trimmer 926/01 On	182 = 2	Pushb. 1	Pushb. 1
n1 n2	Positioning speed Maximum speed	110 111		
t2 tSr tFA tFr	Delay of presser foot lift with pedal in pos. -1 Stop time for ornamental backtack Activation time of the pneumatic thread trimmer Backtack in the case of bobbin thread breakage	201 210 183 184		

Bobbin thread monitor 926/04 (182 = 3)



Abbreviation	Function	Param.	Pushbutton V810	Pushbutton V820
	Single start backtack Single end backtack Bobbin thread monitor 926/04	On On 182 = 3	Pushb. 1 Pushb. 2	Pushb. 1 Pushb. 4
n1	Positioning speed	110		
n2	Maximum speed	111		
n3	Start backtacking speed	112		
n4	End backtacking speed	113		
n7	Trimming speed	116		
t3	Start delay from lifted foot	202		
t6	Operating time of thread wiper	205		
t7	Delay time of presser foot lift after thread wiping	206		
cSP	Stitches until stop after thread monitor error	189		
cAr	Stitch counting until speed release after start backtack	200		

Run with ornamental backtack



0201/LAUFZVR

Abbreviation	Function	Param.	Pushbutton V810	Pushbutton V820
	Double start backtack	On		
	Double end backtack	On		
	Ornamental backtack	On		
	Thread trimmer and thread wiper	On		
	Presser foot lift stored after thread trimming	On		
		135 013/014	Pushb. 1 Pushb. 2 Pushb. 3	Pushb. 1 Pushb. 4 Pushb. 5 Pushb. 6
n1	Positioning speed	110		
n2	Maximum speed	111		
n3	Start backtacking speed	112		
n4	End backtacking speed	113		
n7	Trimming speed	116		
t3	Start delay from lifted foot	202		
t4	Full power of presser foot lift	203		
t5	Holding power of presser foot lift	204		
t6	Operating time of thread wiper	205		
t7	Delay time of presser foot lift after thread wiping	206		
tSr	Stop time for ornamental backtack	210		

4. Parameter List

4.1 OPERATOR LEVEL

Parameter	Designation	Unit	max	min	Preset	Ind. Prg. No.
000 Arv	- Number of stitches of start backtack forward		254	0	3	A
001 Arr	- Number of stitches of start backtack backward		254	0	3	A
002 Err	- Number of stitches of end backtack backward		254	0	3	A
003 Erv	- Number of stitches of end backtack forward		254	0	3	A
004 LS	Light barrier compensating stitches		254	0	7	A
005 LSF	Number of stitches of the light barrier filter for knitted fabrics		254	0	0	A
006 LSn	Number of light barrier seams		15	1	1	A
007 Stc	Number of stitches for the seam with stitch counting		254	0	20	A
008 -F-	Setting of pushbutton 9 on the Variocontrol V820 with a parameter from the technician level 1 = Softstart ON/OFF 2 = Ornamental backtack ON/OFF 3 = High lift for walking foot ON/OFF 4 = Full stitch with pushbutton "needle up" ON/OFF 5 = Sewing start blocked with light barrier uncovered ON/OFF 6 = Reversion ON/OFF		6	1	4	A
009 LS	Light barrier ON/OFF	ON/OFF		OFF		A
013 FA	Thread trimmer ON/OFF	ON/OFF		ON		A
014 FW	Thread wiper ON/OFF	ON/OFF		ON		A
015 StS	Stitch counting ON/OFF	ON/OFF		OFF	A	
030 rFw	0 = Bobbin thread monitor OFF 1 = Bobbin thread monitor with stop 2 = Bobbin thread monitor without stop		2	0	0	A
031 cFw	Number of stitches for bobbin thread monitor		25500 ***)	0	0	A
080 SSF	Bobbin thread monitor ON/OFF	ON/OFF			ON	A

***) When programming the 5-digit parameter values, the 3-digit value displayed must be multiplied by 100.

4.2 TECHNICIAN LEVEL

Code no. 1907 with Variocontrol operation

Parameter	Designation	Unit	max	min	Preset	Ind. Prg. No.
Group 0 Stitches/Countings						
100 SSc	Number of softstart stitches		20	0	0	A
Group 1 Speeds						
110 n1	Positioning speed	RPM	390	70	180	A
111 n2-	Upper limit setting range n-max	RPM	9900	n2_	1500	A
112 n3	Start backtacking speed	RPM	6500	200	1200	A
113 n4	End backtacking speed	RPM	6500	200	1200	A
114 n5	Speed after light barrier sensing	RPM	6500	200	1200	A
115 n6	Softstart speed	RPM	1500	70	400	A
116 n7	Trimming speed	RPM	500	70	180	A
117 n10	High lift walking speed	RPM	6500	400	1500	A
118 n12	Automatic speed for stitch counting	RPM	6500	400	1200	A
119 nSt	Speed stage graduation 1 = linear 2 = slightly progressive 3 = highly progressive		3	1	2	A
Group 2 Speeds						
121 n2_	Lower limit setting range n-max	RPM	n2-	400	400	A
127 AKS	Acoustic signal	ON/OFF			OFF	A
128 ASd	Start delay, when starting command is given by covering the light barrier (see parameter 129)	ms	2000	0	0	A
129 ALS	Machine start by covering the light barrier without resetting the pedal to the basic position. Additional prerequisites: - Parameter 009 = ON (light barrier on) - Parameter 132 = ON (no sewing start with light barrier uncovered) - Parameter 129 = ON (autostart on) - Parameter 131 = ON (light barrier sensing uncovered) - The pedal must remain forward	ON/OFF			OFF	A

TECHNICIAN LEVEL**Code no. 1907 with Variocontrol operation**

Parameter	Designation	Unit	max	min	Preset	Ind. Prg. No.
Group 3 Switching functions						
130 LSF	Light barrier filter for knitted fabrics	ON/OFF			OFF	A
131 LSd	ON = Light barrier sensing "uncovered" OFF = Light barrier sensing "covered"	ON/OFF			ON	A
132 LSS	Blocking of machine start, when light barrier "uncovered"	ON/OFF			ON	A
133 LSE	Thread trimmer, when completing the seam after light barrier sensing	ON/OFF			ON	A
134 SSt	Softstart	ON/OFF			OFF	A
135 SrS	Ornamental backtack	ON/OFF			OFF	A
136 FAr	Trimming stitch backward	ON/OFF			OFF	A
137 HP	High lift for walking foot	ON/OFF			ON	A
139 nIS	Display of machine speed	ON/OFF			OFF	A
Group 4 Switching functions						
140 Sht	Functions with pushbutton "needle up" ON = Single stitch OFF = Needle up	ON/OFF			OFF	A
141 SGn	Speed status for a seam with stitch counting 0 = speed controllable by the pedal up to the set maximum speed (parameter 111) 1 = fixed speed (parameter 118), without influence by the pedal (machine stop by resetting the pedal to the basic position) 2 = limited speed controllable by the pedal up to the set limit (parameter 118) 3 = at fixed speed (parameter 118), can be interrupted by full heelback		3	0	0	A
142 SFn	Speed status for the free seam and for the seam with light barrier 0 = speed controllable by the pedal up to the set maximum speed (parameter 111) 1 = fixed speed (parameter 118), without influence by the pedal (machine stop by resetting the pedal to the basic position) 2 = limited speed controllable by the pedal up to the set limit (parameter 118) 3 = at fixed speed (parameter 118), can be interrupted by full heelback		3	0	0	A

TECHNICIAN LEVEL

Code no. 1907 with Variocontrol operation

Parameter	Designation	Unit	max	min	Preset	Ind. Prg. No.
Group 5 Time functions						
150 t8	Stitch correction of the double start backtack (prolongation of the operating time of the stitch regulator / not effective with ornamental backtack)	ms	500	0	0	A
151 t9	Stitch correction of the double end backtack (prolongation of the operating time of the stitch regulator / not effective with ornamental backtack)	ms	500	0	0	A
152 tHP	Run-out time high lift walking speed	ms	500	80	150	A
153 brt	Braking power at machine standstill		50	0	0	A
Group 6 D.C. motor						
161 drE	Direction of rotation of the motor 1 = Counterclockwise rotation 0 = Clockwise rotation		1	0	1	A
Group 7 Service functions						
170	Setting the reference position: Position 0 = Needle point at the height of the needle plate, from downward movement of the needle in the direction of rotation of the motor shaft					A
171	Setting the needle position: 1 = Lower needle position, on-position of the magnetic thread trimmer 1A = Off-position of the magnetic thread trimmer, on-position of the pneumatic thread trimmer 2 = Stop position after thread trimming 2A = No effect Positions 3 and 3A are set at 000		510	0	162 254 460 48	A

TECHNICIAN LEVEL

Code no. 190 with control operation

Code no. 1907 with Variocontrol operation

Parameter	Designation	Unit	max	min	Preset	Ind. Prg. No.
Group 7 Service functions						
172 Sr3	Display of the positions on control panel V810: Position 1 to 1A (left arrow above pushbutton 4 On) Position 2 to 2A (right arrow above pushbutton 4 On) Function will be active only after the sewing has been started once!					
172 Sr3	Display of the positions on control panel V820: Position 1 to 1A (left arrow above pushbutton 7 On) Position 2 to 2A (right arrow above pushbutton 7 On) Function will be active only after the sewing has been started once!					
173	Checking of the signal outputs and inputs using the control panels V810/V820 - Select the desired output with the +/- pushbuttons - Actuate the selected output with the > > pushbutton 01 = Backtacking (B3/4, B15/1, B16/1) 02 = Presser foot lifting (B3/5) 03 = Magn. thread trimmer (B13/1, B14/1) 04 = Pneum. thread trimmer (B13/4, B14/4) 05 = Thread wiper (B13/5, B14/5) 06 = Signal "machine running" (B14/6) 07 = Signal "machine running and light barrier uncovered" (B9/4) 08 = High lift for walking foot/blocking solenoid (B5/5, B6/1) 09 = Signal "reset" (B17/4) ON/OFF = By actuating the switches connected to the control the function of these switches is checked and displayed with "ON/OFF".					A
179	Display on Variocontrol V820: control program number with index and identification number Display on Variocontrol V810: When pressing the "> >" button, the data will be displayed in succession					A

TECHNICIAN LEVEL

Code no. 1907 with Variocontrol operation

Parameter	Designation	Unit	max	min	Preset	Ind. Prg. No.
Group 8 Functions of specific types						
180 lrd	Number of reversion increments		500	0	0	A
181 drd	Activation delay of reversion	ms	990	0	0	A
182 SSF	Status thread monitor 0 = Bobbin thread monitor and needle thread monitor Off 1 = Magnetic thread trimmer in the case of a bobbin thread or needle thread error 2 = Bobbin thread monitor 926/01 Magnetic thread trimmer in the case of a needle thread error Pneumatic thread trimmer in the case of a bobbin thread error 3 = Bobbin thread monitor 926/04 Stop in the basic position. New sewing start possible with pedal in position 0 (neutral).		3	0	2	A
183 tFA	Activation time of pneum. thread trimmer in the case of a bobbin thread error		990	0	80	A
184 SFr	Number of backtacking stitches in the case of a bobbin error		3	2	2	A
185 cHP	Stitch counting high lift for walking foot		254	0	10	A
186 Fnt	Function "needle up" 1 = Function needle up 2 = Function partial stitch with blocking solenoid 3 = Speed limitation n11		3	1	1	A
187 n11	Speed limitation n11		4000	400	2500	A
188 n9	Speed limitation n9		3000	400	2000	A
189 cSP	Number of stitches until stop in the case of a thread error (this function is effective only if parameter 182 = 3)		2540	0	30	A
Group 9 Functions of specific types						
190	Stop in reverse position	ON/OFF			OFF	A

4.3 SUPPLIER LEVEL

Code no. 3112 with Variocontrol operation

Parameter	Designation	Unit	max	min	Preset	Ind. Prg. No.
Group 0 Time functions						
200 t1	Delay until speed release after start backtack		3	0	1	A
201 t2	Activation delay of presser foot lifting with half heelback	ms	500	20	60	A
202 t3	Start delay after switching off the presser foot lift signal	ms	500	0	80	A
203 t4	Time of full power of presser foot lifting	ms	600	0	500	A
204 t5	Holding power for presser foot lifting Stages 0...7 Stage 1 = 12.5% Stage 7 = 87.5% Stage 0 = 100% Stage 1 = low holding power Stage 0 = high holding power		7	0	3	A
205 t6	Thread wiper time	ms	500	0	120	A
206 t7	Delay end of thread wiping until presser foot lifting ON	ms	800	50	80	A
207 br1	Braking effect when modifying the preset value ≤ 4 stages		255	1	25	A
208 br2	Braking effect when modifying the preset value ≥ 5 stages		255	1	60	A
Group 1 Time functions						
210 tSr	Stop time for switching the stitch regulator in the ornamental backtack	ms	500	0	140	A
211 tFL	Activation delay of presser foot lifting with thread wiper off	ms	500	0	60	A
212 t10	Time of full power of backtacking	ms	600	0	500	A
213 t11	Holding power for backtacking Stages 0...7 Stage 1 = 12.5% Stage 7 = 87.5% Stage 0 = 100% Stage 1 = low holding power Stage 0 = high holding power		7	0	3	A

SUPPLIER LEVEL

Code no. 3112 with Variocontrol operation

Parameter	Designation	Unit	max	min	Preset	Ind. Prg. No.
Group 2 Speeds						
220 ALF	Accelerating power of the drive		255	5	32	A
Group 3 Switching functions						
231 Sn1	Execution of the first stitch after power ON at positioning speed	ON/OFF			ON	A
Group 8 Time functions						
280 LSP	ON = Input for blocking of machine run OFF = Input for external actuation of the presser foot lift at machine standstill	ON/OFF			OFF	A
281 EPd	ON = Pedal in pos. -1 and -2 blocked, when light barrier is on OFF = Pedal in pos. -1 and -2 active	ON/OFF			OFF	A
Group 9 Switching functions						
291 810	Select insertable strip number for Variocontrol V810 (illustrations of insertable strips see the following chapter)		7	1	1	A
292 820	Select insertable strip number for Variocontrol V820 (illustrations of insertable strips see the following chapter)		6	1	1	A

SUPPLIER LEVEL

Code no. 3112 with Variocontrol operation

Parameter	Designation	Unit	max	min	Preset	Ind. Prg. No.
Group 9 Switching functions						
293 tF1	Selection of the input function by pushbutton (A) "F1" on Variocontrol V810/V820 0 = No function 1 = Parameter 140 = OFF (needle up) Parameter 140 = ON (single stitch) 2 = No function 3 = No function 4 = No function 5 = No function 6 = Function blocking solenoid, if parameter 186 = 2 7 = Speed limitation 1 (n11) 8 = Speed limitation 2 (n9) 9 = No function 10 = No function 11 = No function 12 = No function 13 = No function 14 = No function 15 = No function 16 = Intermediate backtack 17 = Backtack suppression/recall 18 = No function 19 = Bobbin thread monitor		19	0	17	A
294 tF2	Selection of the input function by pushbutton (B) "F2" on Variocontrol V810/V820 Functions of the pushbutton as with parameter 293		19	0	1	A

4.4 Insertable Strips for Variocontrol V810/V820

Insertable strips for Variocontrol V810

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4.5 STATUS DISPLAYS

General Information		
On the V810	On the V820	Signification
InF A1	InFo A1	Pedal not in neutral position, when switching the machine on
InF A3	InFo A3	The position to which all position values refer has not been stored (reference position is missing).

Programming Functions and Values (Parameters)		
On the V810	On the V820	Signification
Returns to the first digit	InFo F1	Wrong code number or parameter number input

Serious Situation		
On the V810	On the V820	Signification
InF E1	InFo E1	After power On, position transmitter or commutation transmitter defective or connecting cables have been changed by mistake. During machine run or after a sewing operation, only position transmitter defects can be identified.
InF E2	InFo E2	Line voltage too low, or time between power off and power on too short.
InF E3	InFo E3	Machine locks or does not reach the desired speed
InF E4	InFo E4	Control disturbed by deficient grounding or loose contact

Hardware Disturbance		
On the V810	On the V820	Signification
InF H1	InFo H1	Commutation transmitter cord or frequency converter disturbed
InF H2	InFo H2	Processor disturbed

For your notes



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